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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/578,607

05/08/2006

Anne Ferreol

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03/03/2009

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EXAMINER

LAM, KENNETH T

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

03/03/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/578,607 | Applicant(s) FERREOL ET AL. | |
| | Examiner KENNETH LAM | Art Unit 2611 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/08/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1-3 are objected to because of the following informalities:

In Claim 1, there are no transitional phrases, for example, "comprising", "consisting essentially of" and "consisting of" in the claims. The transition phrases "comprising", "consisting essentially of" and "consisting of" define the scope of claim with respect to what are not recited additional components or steps, if any, are excluded from the scope of the claims. The claimed process contains no steps to describe such process.

In addition, the claimed equations in claim 1 do not disclose each and single variable clearly. For example, $T = IT_e$, the variable I is not defined and observations $x(kT_e)$, the variable k is not defined.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

In Claim 1, the claimed "ICA-type method", the ICA is indefinite and required to spell out to particularly point out and distinctly claim the subject matter. In addition, the specification does not have the full naming on the claimed abbreviation. The examiner construed ICA as Independent Component Analysis for prior art rejection.

In addition, there is insufficient antecedent basis for this limitation in the claim. For example, "the symbol period T", "the L_c outputs", and "the phase" are not defined before ahead.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: **(See MPEP Ch. 2141)**

- a. Determining the scope and contents of the prior art;
- b. Ascertaining the differences between the prior art and the claims in issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

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5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thibault et al. (Thibault herein after) (US 6,240,098 B1) in view of Dishman et al. (Dishman herein after) (US 2003/0204380 A1) and Ling et al. (Ling herein after) (US 2002/0122397 A1).

Re Claim 1, Thibault discloses a process for the blind demodulation of a linear-waveform source or transmitter in a system comprising one or more sources and an array of sensors and a propagation channel, said process wherein:

the symbol period T is determined and samples are taken at T_e such that $T=IT_e$ (column 18 lines 28-65);

a spatio-temporal observation $z(t)$, the mixed sources of which are symbol trains from the transmitter, is constructed from the observations (column 12 line 40 – column 14 line 53).

Thibault discloses the claimed invention except an ICA-type method. However, Dishman teaches a blind source separation utilizing high order statistics wherein an ICA-type method is applied to the observation vector $z(t)$ in order to estimate the symbol trains that are associated with the channel vectors ([0012]-[0013], [0056]-[0058]).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize the high order statistics techniques as taught by Dishman with the process for blind demodulation as taught by Thibault to further improve the accuracy of channel estimation.

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Thibault discloses the claimed invention except explicitly discloses the outputs are arranged and the phase determination in the demodulation. However, Ling teaches a receiver wherein:

the outputs are arranged in the same order as the inputs so as to obtain the propagation channel vectors ([0023]); and

the phase associated with the outputs is determined ([0023]).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize the demodulation technique as taught by Ling with the process for blind demodulation as taught by Thibault to further improve the efficiency of channel demodulation.

Re Claim 2, the combined teachings disclose the process as claimed in claim 1, Thibault discloses wherein the propagation channel parameters are estimated in order to determine the carrier frequency so as to compensate for the symbol trains in order to obtain them in baseband (column 19 lines 25 – column 20 line 48).

Re Claim 3, the combined teachings disclose the process as claimed in claim 1, Thibault discloses wherein it includes a step of estimating the angle θ_p and delay τ_p parameters of the propagation channel (column 19 lines 25 – column 20 line 48).

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH LAM whose telephone number is (571)270-1862. The examiner can normally be reached on Mon - Fri 7:30 am - 4:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KENNETH LAM/

Examiner, Art Unit 2611

02/23/2008

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611